

**FIG. 1. Rat polypeptide P501S sequence (SEQ ID NO.1)**

MIQRLWASRLLRHRKAQQLLVNLLTFGLEVCLAAGITYVPPLLLLEVGVEEKFMTMVLGIGPVLGLVSVPL  
LLGSASDQWRGRYGRRRPFIWALSLGVLLSLFLIPRAGWLAGLLCSDTRPLELALLILGVLLDFCGQV  
CFTPLEALLSDLFRDPDHCRAFSVYAFMISLGGCLGYLLPAIDWDTSALAPYLGTQECLFGLLTILF  
LICVAATLLVAEEAVLGPPEPAEGLLVSSVSRRCCSCHAGLAFRNLGTLFPRHLQQLCCMRPRTLRLRFV  
AELCSWMALMTFTLFYTDVGEGLYQGVPRAEPTARRHYDEGIRMGSLGLFLQCAISLFFSLVMDRL  
VQKFGTRSVYLASVMTFPVAAAATCLSHSVVVVTASAALTGFTFSALQILPYTLASLYHREKQVFLPKY  
RGDAGGGSSSEDSQTTSFLLGPKPGAPFPNGHVPGGSSILVPPPALCGASACDVSMRVVVGEPPEAKVV  
TGRGICLDLAILDSAFLLSQVAPSLFMGSIVQLSHSVTAYMVSAAAGLGLVAIYFATQVVFDDKNDLAKYS  
L

**FIG.2. Nucleotide sequence encoding rat P501S (SEQ ID NO.2).**

GGGCTCTTAGACACCGCAACAAAAGCAACTTTCCTCCAAGCCACTGCCACCTGTTGGGTTTTTCACACAT  
TTCGAGCTTTAGTTCCGATCCCCAGAACATCCACGTAGTTTTTCTGGCCTTCTGGCTGAGCCATGGAGG  
CCGACAGAGGAGGGGAGAAGTTTGAAGCTTGAGAAGGATTTCCGTATGCGCAAGGCTACCCATGCTTGT  
CCTTCCTCCCATGACCCTGGTCAGCCCTCCTCTGCCCTCCTCTTCCTGCCCCCTTCTCTCCAGGGTCC  
GACTGACGAGATGTGTCCCCATCAAGCAAGGCACTAGATGGTGACGTGTTCAGTGTGGGATGAGATGCC  
GAAGTGGTACTCAAGGGCTGGCCGAAATGGGAGCCTGGCTGCACCCTCGGAGGTTGGTGCTAGCAAGGA  
GGAGAAGCCGCGGCAGGGCTGACTCAAAACAGCTGTGGGGTGTGTGAATGGCCCCCGACCCCTAACCG  
CCCTGTCCATCatgatccagaggctgtgggccagccgtctgctaaggcatcggaagcccagctcctgc  
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ccaaatactcactgtagAATTCTGTAAGGCATCAAAGAAGAGGATCTGCCTCCCCGTTCTCAGCCCCA  
GAGGGCTGCAGAGCTGGTCTCTTTCCGGTCTCTGTTGCCCTGAGTGGCTCTCCACTGCCATCCGAAGGC  
AGTGAGGTGTATGGCTGCACAGGTTGGAGCTTTTGGC

**FIG. 3. Amino acid sequence for Cynomolgus monkey P501S (SEQ ID N°3)**

MVQRLWVSRLLRHRKAQLLLINLLTFGLEVCLAAGITYVPPLLLLEVGVEEKFMTMVLGIGPVLGLVSV  
LLGSASDHWGRYGRRRPFIWALSILGILLSLFLIPRAGWLAGLLCPDRPLELALLILGVGLLDFCGQV  
CFTPLEALLSDLFRDPDHCROAYSVYAFMISLGGCLGYLLPAIDWDTALAPYLGTQECLFGLLTILF  
LTCVAATLLVAEEAALGPAEPAEGLSAPSLPSHCCPCWARLAFRNLGALLPRLHQLCCRMPTLRRLFV  
AELCSWMALMTFTLFYTD FVGEGLYQGVPRAE LGTEARRHYDEGVRMGS LGLFLQCAISLVFSLVMDRL  
VQRF GTRAVYLASVAAFPVAAGATCLSHSVAVVTASAALTGFTFSALQILPYTLASLYHRERQVFLPKY  
RGDAGGTSSEDSLMTSFLPGPKPGAPFPNGHV GAGGSGLLPPPPALCGASACDVSVRVVVGEPTEARVV  
PGRGICLDLA ILDSAFLLSQVAPSLFMGSIVQLSQSVTAYMVSAAGLGLVAIYFATQVVF DKS DLAKYS  
V

**FIG.4. Nucleotide sequence for Cynomolgus monkey P501S (SEQ ID N°3)**

AAAAAAAAAGCCCGCCGGCTGGCGCGCGTGGGGGGCAAGGAAAAGAGGGGGGAAAACAGTCTGCACGCGC  
TGGCTCCGGGTGACAGCCGCGCGCTAGGCCAGGCAGCGTCTCCCTCTGTCAACCAGACTGGAGGCAAT  
GTTCTGATCACTGCACACTGCACCCCTTGACCTCCAGACTCAAGCAATCCTCCCATCTCAGCCTCTTAA  
GTAGCTGGGACCACAGGATCTGAGTGATGAGATGTGTCCCCACTGAGGTGCCCCACAGCAGCAGGTGTT  
GAGCATGGGCTGAGAAGCTGGACCGGCACCAAAGGGCTGGCGGAAATGGGCGCCTGGCTGATTCTTAGG  
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GAATGTGGGGACTCTGCAGGTGGATTACCCAGGCTCAGGGTTAACAGCTAGCCTCCTGGCTGAGACATA  
CCTAGAGAAGGGGTTTTGGGAGCTGAGTAACTCAGTCACCTGGTTTTCCACCTCTAAGCCCCCTTAAC  
CTGCAGCTTCATTTAATGTAGCTCTTGATGGGAGTTTTCTAGGATGAAACACTCCTCCGTGGGATTTGA  
ACGTATGAAAGTTATTTGTAGGGGAAGAGTCTTGAGGGGCAACACACCAGGTCCCCCTCAGCCCACAGCA  
CTGCCTTTTTGTGCTGATCCCCTGACTCTTACCTTTTATCAGGACGTGGCCTATTGGTCCCTTTGTTGCCA  
TCATAGGGACACAGGCATTTAAATATTTAACTTATTTATTTAACAAAGTAGAAGGGAATCCATTGCTAG  
CTTTTGTGTGTTGGTGTCTAAGATTTGGGTAGGGTGGGATCCCCAACAAATCAGGTCCACTGAGATCACT  
GGTCATTGGGCTGATCATTGCCAGAATCTTCTCTCCTGGGGTCTGGCTCCTCAAAATGCCTAACCCAG  
GACCTTGAAATTTTACTCATCCCGACTGATAATCCAAATGCTGTTACCCAAGGTTAGGGGGTTGAAG  
GAAGGTGGAGGGTGGGGCTTCAGGTCTCAACAGCTTCCCTAACCAACCCCTTTTCTCTTGGCCCAGCCTG  
GTTCCCCCACTTCTACTCCCCTCTACTGTCTCTAGGACTGGGCTGATGAAGGCACTGCCTGAAATTTT  
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GTGTGGTTTTCCAGGCCTTTGTCCATCTCAGCCCCCAGAGTATATCTGTGCTTGGGGAATCTCACACA  
GAAACTCAGGAGCACCCCCCTGCCTGAGCTAAGGAGGTCTTATCTCTCAGGGGGGTTTAAGTGCCGTTTG  
CAATAATGTCTTATTTATTTAGCGGGGCAAATATTTTATACTGTAAGTGAGCAATCAGTATAATGTTTA  
TGGTGATGAAATTAAAGGCTTCTTATATGTTTAAAAA

**FIG.5. Amino acid sequence for human P501S (SEQ ID N°5)**

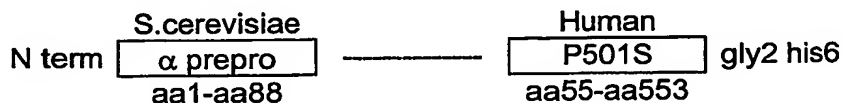
MVQRLWVSRLLRHRKAQLLLVNLLTFGLEVCLAAGITYVPPILLLEVGVEEKFMTMVLGIGPVLGLVCVP  
 LLGSASDHWGRGRYGRRRPFIWALSGLILLSLFLIPRAGWLAGLLCPDPRPLELALLILGVGLLDFCGQV  
 CFTPLEALLSDLFRDPDHCRQAYSVYAFMISLGGCLGYLLPAIDWDTALAPYLGTEECLEFGLLTLLIF  
 LTCVAATLLVAEEAALGPTEPAEGLSAPSLSPHCCPCRARLAFRNLGALLPRLHQLCCRMPTLRRLFV  
 AELCSWMALMTFTLFYTDVFGEGLYQGVPRAEPTGTEARRHYDEGVRMGSGLFLQCAISLVFSLVMDRL  
 VQRFQTRAVYLASVAAFVAAAGATCLSHSVAVVTASAALTGFTFSALQILPYTLASLYHREKQVFLPKY  
 RGDGTGGASSEDLSMTSFLPGPKPGAPFPNGHVGAGGSGLLPPPPALCGASACDVSVRVVVGEPTEARVV  
 PGRGICLDLAILDFAFLLSQVAPSLFMGSIVQLSQSVTAYMVSAAGLGLVAIYFATQVVFDKSDLAKYS  
 A

**FIG.6. Amino acid sequence for human P501S (SEQ ID N°6)**

GLYQGVPRAEPTGTEARRHYDEGVRMGSGLFLQCAISLVFSLVMDRLVQRFQTRAVYLASVAAFVAAAG  
 ATCLSHSVAVVTASAALTGFTFSALQILPYTLASLYHREKQVFLPKYRGDGTGGASSEDLSMTSFLPGPK  
 PGAPFPNGHVGAGGSGLLPPPPALCGASACDVSVRVVVGEPTEARVVVPGRGICLDLAILDFAFLLSQVA  
 PSLFMGSIVQLSQSVTAYMVSAAGLGLVAIYFATQVVFDKSDLAKYSA

**FIG.7. Amino acid sequence for human P501S (SEQ ID N°7)**

MGSGLFLQCAISLVFSLVMDRLVQRFQTRAVYLASVAAFVAAAGATCLSHSVAVVTASAALTGFTFSAL  
 LQILPYTLASLYHREKQVFLPKYRGDGTGGASSEDLSMTSFLPGPKPGAPFPNGHVGAGGSGLLPPPPAL  
 CGASACDVSVRVVVGEPTEARVVVPGRGICLDLAILDFAFLLSQVAPSLFMGSIVQLSQSVTAYMVSAAG  
 LGLVAIYFATQVVFDKSDLAKYSA

**FIG. 8: Design of the yeast P501S recombinant protein**

**FIG. 9. Amino acid sequence (SEQ ID NO:9) and nucleotide sequences (SEQ ID NO:8) of alpha prepro P501S his**

Nucleotide sequence (SEQ ID NO:8)

ATGAGTTTCC TCAATTTTAC TGCAGTTTTA TTCGCAGCAT CCTCCGCATT AGCTGCTCCA  
GTCAACACTA CAACAGAAGA TGAAACGGCA CAAATTCCGG CTGAAGCTGT CATCGGTTAC  
TCAGATTTAG AAGGGGATTT CGATGTTGCT GTTTTGCCAT TTTCCAACAG CACAAATAAC  
GGGTTATTGT TTATAAATAC TACTATTGCC AGCATTGCTG CTAAAGAAGA AGGGGTATCT  
CTCGAGAAAA GAGAGGCTGA AGCCatgGTG CTGGGCATTG GTCCAGTGCT GGGCCTGGTC  
TGTGTCCCGC TCCTAGGCTC AGCCAGTGAC CACTGGCGTG GACGCTATGG CCGCCGCCGG  
CCCTTCATCT GGGCACTGTC CTTGGGCATC CTGCTGAGCC TCTTTCTCAT CCCAAGGGCC  
GGCTGGCTAG CAGGGCTGCT GTGCCCCGAT CCCAGGCCCC TGGAGCTGGC ACTGCTCATC  
CTGGGCGTGG GGCTGCTGGA CTTCTGTGGC CAGGTGTGCT TCACTCCACT GGAGGCCCTG  
CTCTCTGACC TCTTCCGGGA CCCGGACCAC TGTCGCCAGG CCTACTCTGT CTATGCCTTC  
ATGATCAGTC TTGGGGGCTG CCTGGGCTAC CTCCTGCCTG CCATTGACTG GGACACCAGT  
GCCCTGGCCC CCTACCTGGG CACCCAGGAG GAGTGCCTCT TTGGCCTGCT CACCCTCATC  
TTCCTCACCT GCGTAGCAGC CACACTGCTG GTGGCTGAGG AGGCAGCGCT GGGCCCCACC  
GAGCCAGCAG AAGGGCTGTC GGCCCCCTCC TTGTCGCCCC ACTGCTGTCC ATGCCGGGCC  
CGCTTGGCTT TCCGGAACCT GGGCGCCCTG CTTCCCCGGC TGCACCAGCT GTGCTGCCGC  
ATGCCCCGCA CCCTGCGCCG GCTCTTCGTG GCTGAGCTGT GCAGCTGGAT GGCATCATG  
ACCTTCACGC TGTTTTACAC GGATTTCGTG GGCGAGGGGC TGTACCAGGG CGTGCCCA  
GCTGAGCCGG GCACCGAGGC CCGGAGACAC TATGATGAAG GCGTTCGGAT GGGCAGCCTG  
GGGCTGTTCC TGCAGTGCGC CATCTCCCTG GTCTTCTCTC TGGTCATGGA CCGGCTGGTG  
CAGCGATTCT GCACTCGAGC AGTCTATTTG GCCAGTGTGG CAGCTTTCCC TGTGGCTGCC  
GGTGCCACAT GCCTGTCCCA CAGTGTGGCC GTGGTGACAG CTTAGCCCGC CCTACCCGGG  
TTCACCTTCT CAGCCCTGCA GATCCTGCCC TACACACTGG CCTCCCTCTA CCACCGGGAG  
AAGCAGGTGT TCCTGCCCCA ATACCGAGGG GACACTGGAG GTGCTAGCAG TGAGGACAGC  
CTGATGACCA GCTTCCTGCC AGGCCCTAAG CCTGGAGCTC CCTTCCCTAA TGGACACGTG  
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GAtGTCTCCG TACGTGTGGT GGTGGGTGAG CCCACCGAGG CCAGGGTGGT TCCGGGCCGG  
GGCATCTGCC TGGACCTCGC CATCCTGGAT AGTGCCTTCC TGCTGTCCCA GGTGGCCCCA  
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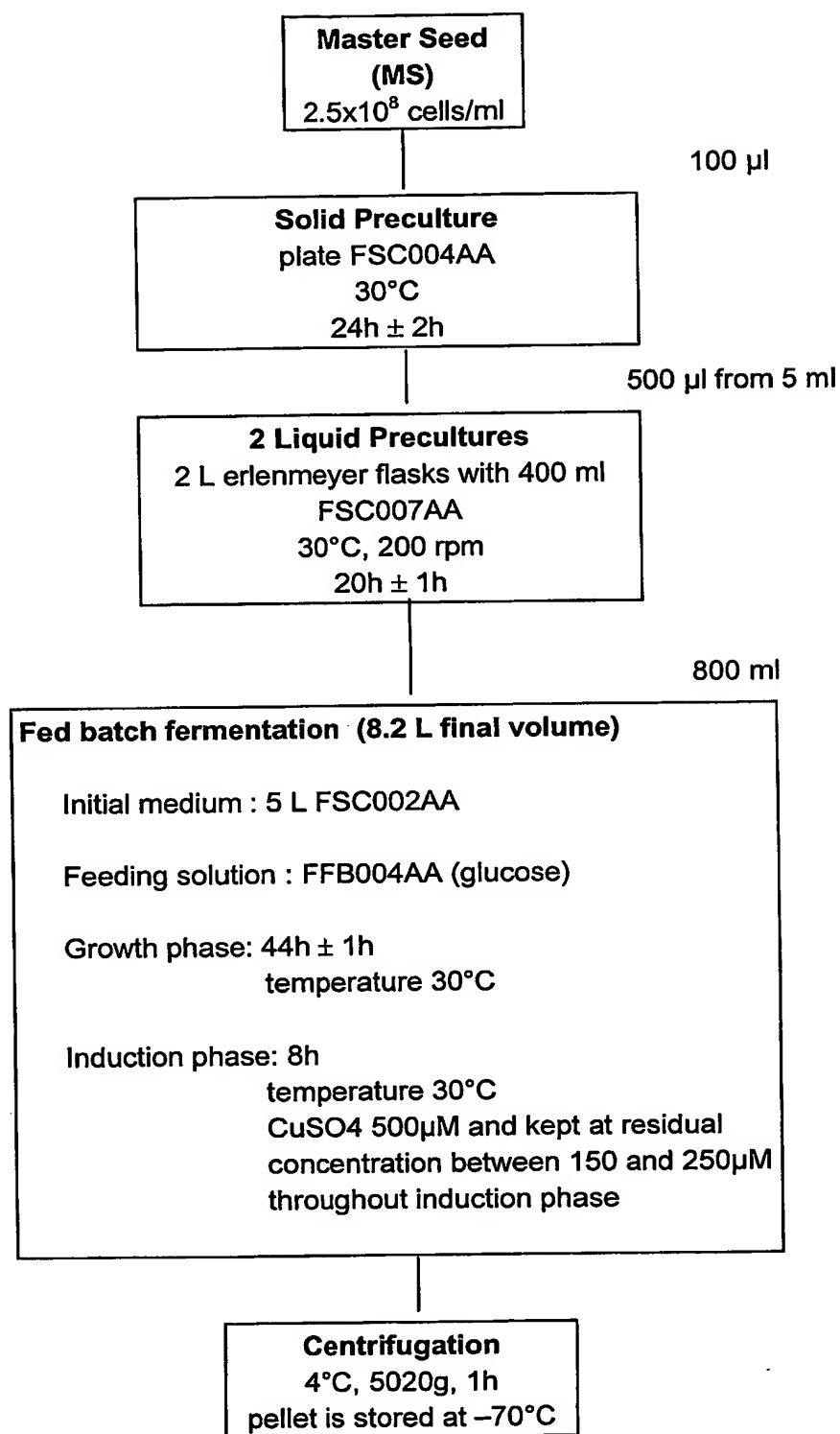
Amino acid sequence (SEQ ID NO:9)

MSFLNFTAVL FAASSALAAP VNTTTEDETA QIPAEVIGY SDLEGDFDVA VLPFSNSTNN  
GLLFINTTIA SIAAKEEGVS LEKREAEAMV LGIGPVLGLV CVPLLGSASD HWRGRYGRRR  
PFIWALS LSLFLIPRA GWLAGLLCPD PRPLELALLI LGVGLLDFCG QVCFTPLEAL  
LSDLFRDPDH CRQAYSVYAF MISLGGCLGY LLPAIWDWTS ALAPYLGTQE ECLFGLLTLI

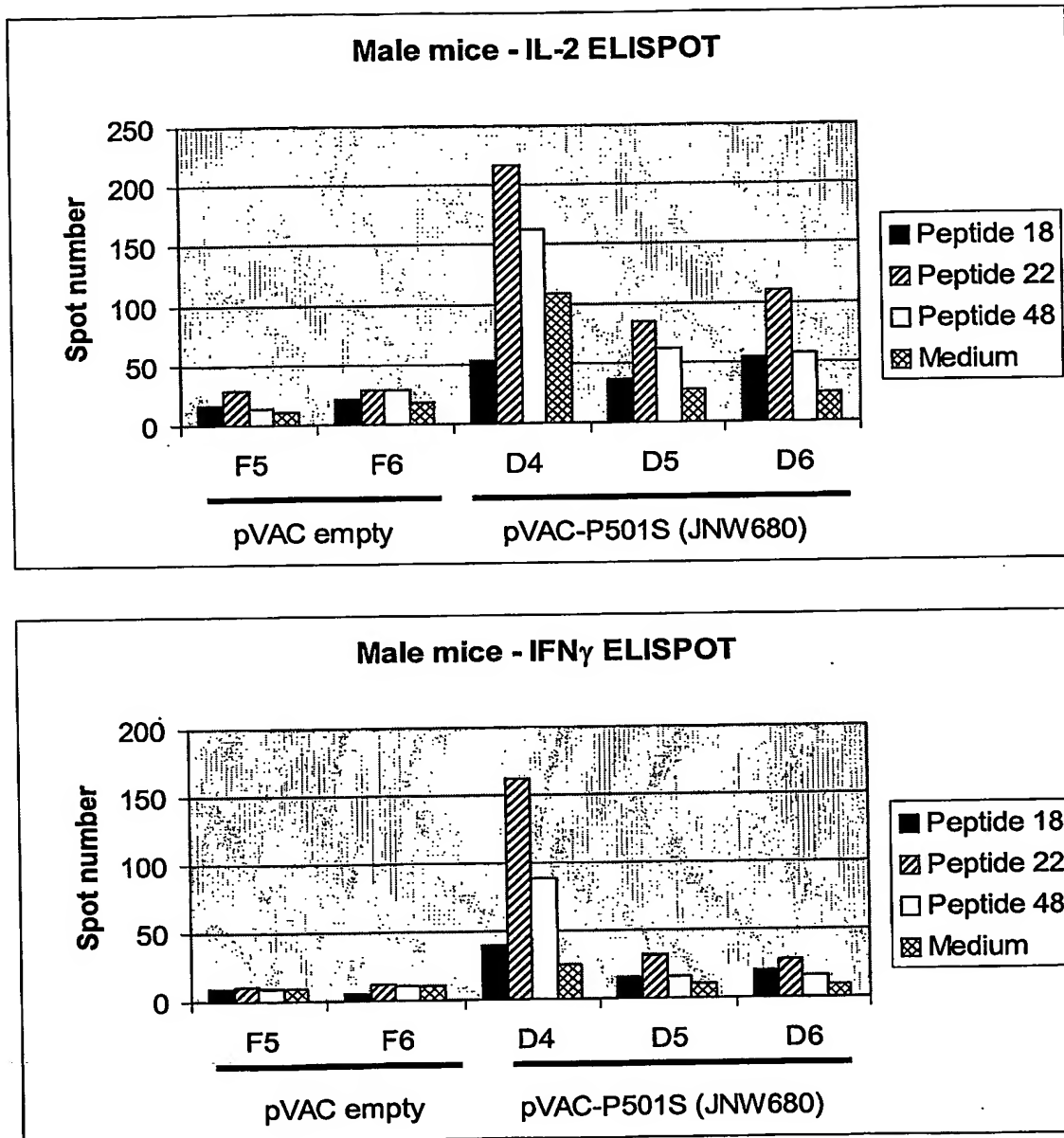
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FLTCVAATLL	VAEEAALGPT	EPAEGLSAPS	LSPHCCPCRA	RLAFRNLGAL	LPRLHQLCCR
MPRTLRLRFV	AELCSWMALM	TFTLFYTDV	GEGLYQGVPR	AEPGTEARRH	YDEGVRMGSL
GLFLQCAISL	VFSLVMDRLV	QRFGTRAVYL	ASVAAFPVAA	GATCLSHSVA	VVTASAALTG
FTFSALQILP	YTLASLYHRE	KQVFLPKYRG	DTGGASEDS	LMTSFLPGPK	PGAPFPNGHV
GAGGSGLLPP	PPALCGASAC	DVSVRVVGE	PTEARVVPGR	GICLDLAILD	SAFLLSQVAP
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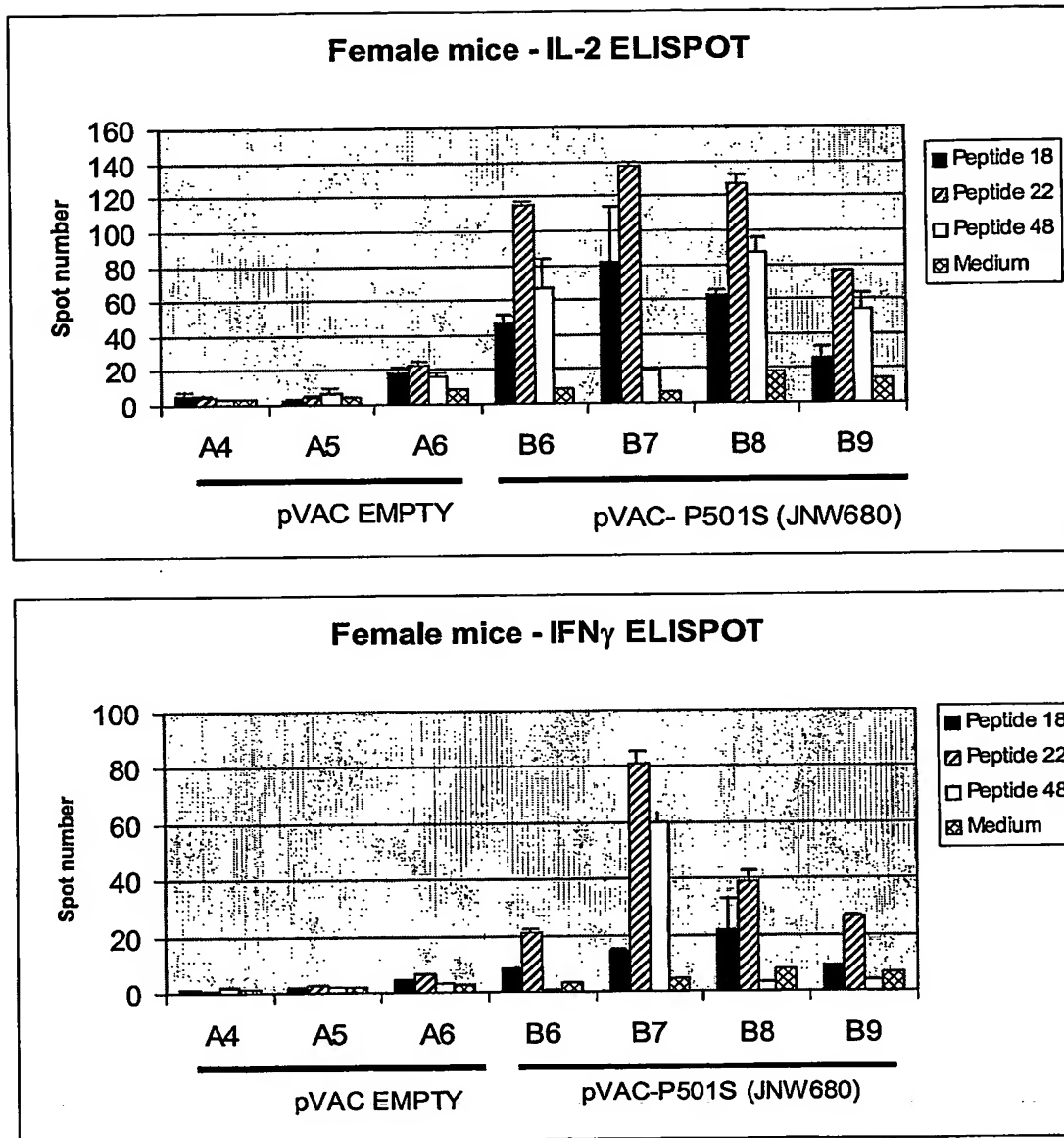
FIG.10.

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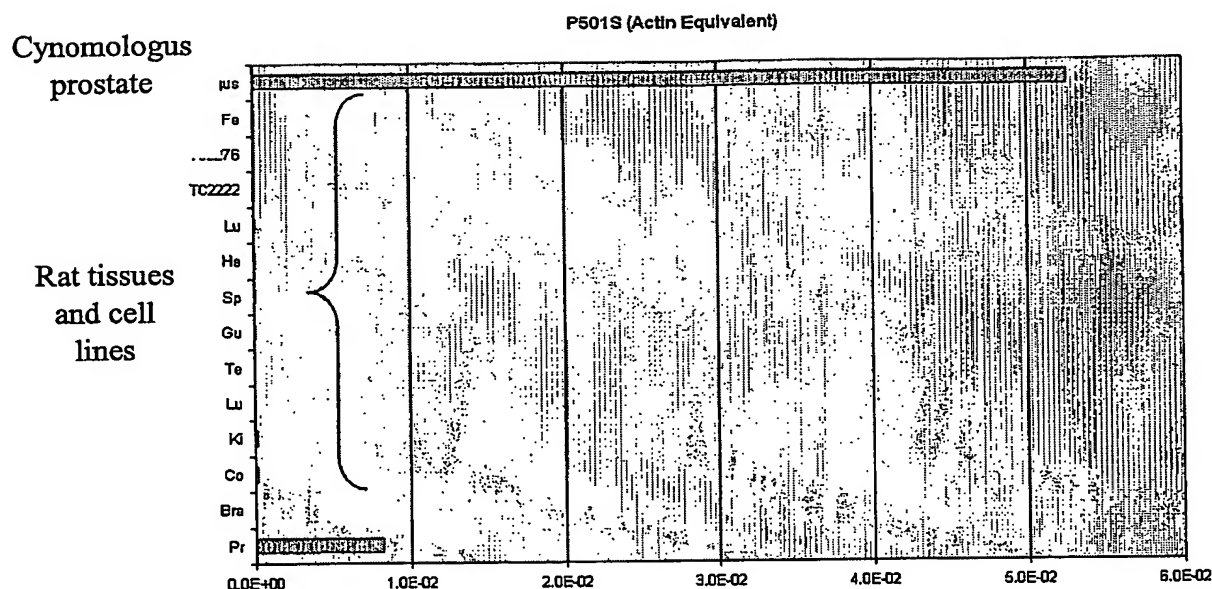
**FIG.11.**



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**FIG.12.**

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**FIG. 13.****FIG. 14. Amino acid sequence for mouse P501S (SEQ ID N°10)**

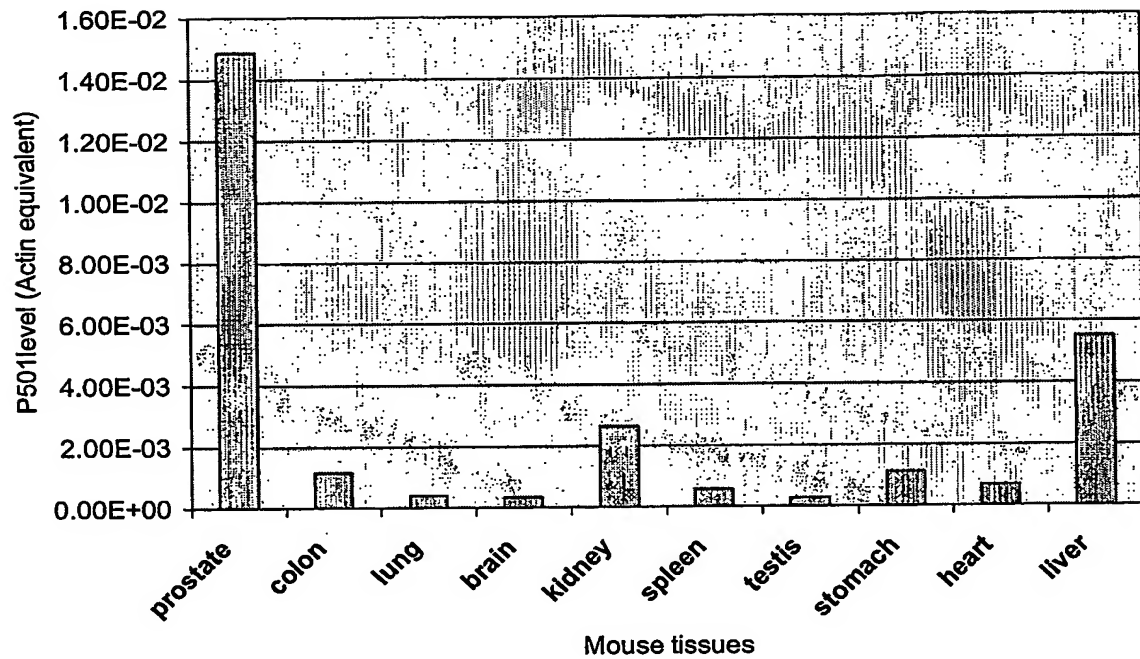
MIQRLWASRLLRHRKAQLLLVNLLTFGLEVCCLAAGITYVPPLLLEVGVEEKFMTMVLGIGPVLGLVSV  
 LLGSASDQWRGRYGRRRPFIWALSLGVLLSLFLIPRAGWLAGLLYPDTRPLELALLILGVGLLDFCGQV  
 CFTPLEALLSDLFRDPDHCRAFSVYAFMISLGGCLGYLLPAIDWDTSVLAPYLGTOEECLFGLLTLI  
 LICMAATLFVTTEEAVLGPPEPAEGLLVSAVSRCCPCHVGLAFRNLGTLFPRLQQLCCMRPRTLRRRLFV  
 AELCSWMALMTFTLFYTDVFGEGLYQGVPRAPGTEARRHYDEGIRMGSLGLFLQCAISLVFSLVMDRL  
 VQKFGTRSVYLASVMTFPVAAAATCLSHSVVVVTASAALTGFTFSALQILPYTLASLYHREKQVFLPKY  
 RGDAGGSSGSDSQTTSFLPGPKPGALFPNGHVSGSSGILAPPPALCGASACDVSMRVVVGEPPPEARVV  
 TGRGICLDLAILDSAFLLSQVAPSLFMGSIVQLSHSVTAYMVSAAGLGLVAIYFATQVVFQVFDKNDLAKYS  
 V

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**FIG.15. DNA sequence for mouse P501S (SEQ ID N°11)**

GAGATT TAAAAGGCGCCCGCTGGCGCGCGTTGGTGAMSCAGGBGTGCGCGAGCTCGCACGCGCCAGCCC  
CAGGTGACAGCCGCACGCCGGGCCAGGATCTGACCGACGAGATGTGTCCCCATCAAGCAAGGCACTAGA  
TGGTGACGTGTTTAGCGTGGGACGAGATGCTGAATTGGCAC TAAAGGGCTGGCAGAAATGGGAACCTGG  
CTGCACCC TAGGAGGTTAGTGCTAGTGAGGAGGAGAAGCCACGGCAGGGCTGACTCAAAGCAGCTGTGG  
AGTATGTGAGTAGCCCTGGAACCC TACCTGCCCTGTCCATCatgatccagaggctgtggggccagccgt  
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TAAGTGGCTCTCTGCTGCCACCC TAAGGCAGTGAGGTGTATTGTTGCACAGATAGGAGCCAGAGCTTTC  
GGGGCTCTGGCTTCAGAGTCTGGCTGGCCTACTGGCAGCCTCTCGCATG

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**FIG.16.**

**FIG.17.**

